

CLAIMS

What is claimed is:

Claim 1. A rotary cable treatment assembly comprising:

a stator formed from a first generally semi-cylindrical shell having an inner surface and an outer surface with a proximate endwall located along a first end of said shell and a distal endwall located along a second end of said shell, a second generally semi-cylindrical shell having an inner surface and outer surface having both proximal and distal endwalls forming a mirror image of said endwalls of said first shell, said first shell being securable to said second shell thereby defining a cavity therebetween with each said endwall cooperating to form an aperture adapted to encircle a cable having a non-circular cross section traveling axially through said stator;

a rotor assembly rotatably secured within said cavity, said rotor assembly having a centrally located aperture designed and arranged to fit around the cable traveling axially through said stator, said rotor assembly including a means for hydraulically sealing to said stator and to the cable;

a high pressure fluid input port;

wherein a cable is passed between the proximal and distal apertures of said stator and said rotor whereby the cable is subjected to said high pressure fluid allowing fluid

1 impregnation to cable strands with minimal fluid loss from said
2 assembly.

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4 Claim 2. The rotary cable treatment assembly according to
5 claim 1 wherein said first shell is hingedly coupled to said
6 second shell and securable in a closed position by at least one
7 fastener.

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9 Claim 3. The rotary cable treatment assembly according to
10 claim 1 wherein said means for hydraulically sealing is further
11 defined as rotor constructed from a deformable material that
12 seals at high pressures including an outer surface conforming
13 to the inner surface of said stator and an inner surface
14 conforming to the outer surface of the cable.

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16 Claim 4. The rotary cable treatment assembly according to
17 claim 3 wherein said rotor assembly is diametrically split
18 along its axis for ease of place around a cable.

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20 Claim 5. The rotary cable treatment assembly according to
21 claim 3 wherein said rotor is maintained a predetermined
22 distance from the inner surface of said stator by a bearing and
23 rotating bushing.

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1 Claim 6. The rotary cable treatment assembly according to
2 claim 1 wherein said first and second shell includes a sealing
3 ring therebetween.
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5 Claim 7. The rotary cable treatment assembly according to
6 claim 1 wherein said fluid is a lubricant injected at about
7 3000psi.
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9 Claim 8. The rotary cable treatment assembly according to
10 claim 1 wherein said fluid is a high viscosity inhibitor or
11 cleaning fluid injected at about 3000psi.
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13 Claim 9. The rotary cable treatment assembly according to
14 claim 1 wherein said rotor can be sized to have an inner
15 surface diameter to accommodate a cable of any size diameter.
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17 Claim 10. The rotary cable treatment assembly according
18 to claim 1 wherein said rotor can be formed from a single piece
19 of material with a means for spacing the hydraulic seals.
20

21 Claim 11. The rotary cable treatment assembly according to
22 claim 1 including a means for measuring the amount of pressure
23 in said cavity.
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1 Claim 12. The rotary cable treatment assembly according
2 to claim 3 including a detent located around the circumference
3 of each seal that comprises the rotor, said detent operatively
4 associated with a tab located around the inner surface of said
5 stator wherein said detent and tab operate to contain fluid
6 from passing while under pressure.

7
8 Claim 13. The rotary cable treatment assembly according
9 to claim 3 including a raised tab located around the
10 circumference of each seal, said raised tab operatively
11 associated with a detent located around the inner surface of
12 said stator wherein said tab and detent operate to contain
13 fluid from passing while under pressure.

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15 Claim 14. The rotary cable treatment assembly according
16 to claim 3 wherein each said seal includes an alignment means
17 for positioning the rotor assembly to maintain a fluid
18 injection cavity while maintaining a seal along each said
19 endwall.

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21 Claim 15. The rotary cable treatment assembly according
22 to claim 1 wherein the cable has a non-circular cross section.

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1 Claim 16. A rotary cable lubricant treatment assembly for
2 use on cables having a non-circular cross section, said
3 assembly comprising:

4 a stator formed from a first generally semi-cylindrical
5 shell having an inner surface and an outer surface with a
6 proximate endwall located along a first end of said shell and
7 a distal endwall located along a second end of said shell, a
8 second generally semi-cylindrical shell having an inner surface
9 and outer surface having both proximal and distal endwalls
10 forming a mirror image of said endwalls of said first shell,
11 said first shell being securable to said second shell thereby
12 defining a cavity therebetween with each said endwall
13 cooperating to form an aperture adapted to encircle a cable
14 having a non-circular cross section traveling axially through
15 said stator, said first shell is hingedly coupled to said
16 second shell and securable in a closed position by at least one
17 fastener;

18 a rotor rotatably secured within said cavity, said rotor
19 having a centrally located aperture designed and arranged to
20 fit around the cable traveling axially through said stator,
21 said stator including a tab located around the inner surface at
22 a predetermined distance from said stator proximal and distal
23 endwalls, said rotor including a first seal located between
24 said proximal endwall at one end of said rotor, and a second

1 seal located between said distal endwall at a second end of
2 said rotor, each seal having an outer surface conforming to the
3 inner surface of said stator and an inner surface conforming to
4 the outer surface of the cable, each said seal having a detent
5 located around the circumference of each seal;

6 a bearing and rotating bushing means for maintaining said
7 rotor in a predetermined position from the inner surface of the
8 stator;

9 a high pressure lubricant input port;

10 wherein a cable having a non-circular cross section is
11 passed between the proximal and distal apertures of said stator
12 and said rotor whereby the cable is subjected to said high
13 pressure lubricant allowing lubricant attachment to cable
14 strands with minimal lubricant loss from said assembly.

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16 Claim 17. The assembly according to claim 16 wherein said
17 fastener is further defined as coupling bolts positioned along
18 an edge of said stator to provide sufficient clamping pressure
19 for 3000psi cavity pressures.

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21 Claim 18. The assembly according to claim 16 wherein each
22 said seal is diametrically split and deformable under high
23 pressure to provide a seal between the seal and the cable, and
24 between the seal and the stator.

1 Claim 19. The assembly according to claim 16 wherein said
2 first and second shell includes a means for sealing said shells
3 to withstand an internal lubricant pressure of about 3000psi.
4

5 Claim 20. The assembly according to claim 16 wherein said
6 means for hydraulic sealing can be sized to have an inner
7 surface diameter to accommodate a cable of any size diameter.
8

9 Claim 21. The assembly according to claim 16 including a
10 means for measuring the amount of pressure in said cavity.
11

12 Claim 22. The assembly according to claim 16 wherein said
13 raised tab is located around the circumference of each seal and
14 said detent is located around the inner surface of said stator
15 wherein said tab and detent operate to contain fluid from
16 passing while under pressure.
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18 Claim 23. A method for treating a cable having a non-
19 circular outer surface, comprising the steps of:

20 positioning a cable through a stator formed from a first
21 generally cylindrical shell having a cavity housing a rotatable
22 rotor assembly;

23 injecting a fluid into said cavity at a pressure
24 sufficient to impregnate the cable with the fluid;